

REMARKS

Claims 13 and 14 currently appear in this application. The Office Action of December 23, 2005, has been carefully studied. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicant respectfully requests favorable reconsideration, entry of the present amendment, and formal allowance of the claims.

Art Rejections

Claims 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koshiishi et al.

This rejection is respectfully traversed. Claim 13 has been amended to recite "an ophthalmologically acceptable artificial retinal material in the form of a film, sheet or net to meet the shape and size of the optic cup or affected parts, which can be installed in or transplanted into an eyeball surgically and can be substituted for a part or the whole of the function of the retinae of animals." It should be noted that the term "animals" includes humans.

In contrast thereto, Koshiishi only discloses dye compounds which can be used as materials for an optical sensor or detector. It is not clear if the dye compounds disclosed in Koshiishi can be used in animals, including humans, because

the dye compounds disclosed in Koshiishi are merely disclosed to be sensor molecules. There is no indication in Koshiishi that the dye molecules are ophthalmologically acceptable.

Furthermore, an "ophthalmologically acceptable artificial retinal material" as recited in claim 13 consists essentially of:

- (1) a biocompatible large molecule as an ophthalmologically acceptable base, and
- (2) an ophthalmologically acceptable organic dye compound which is chemically bound or incorporated thereto or therein.

The "sensor" of Koshiishi comprises:

- (1) a substrate, and
- (2) the following materials (a) to (c) formed on the substrate:
 - (a) an ion complex material of an ionic amphipathic compound with a polymer having ionic groups of the opposite electrical charge;
 - (b) a potential-sensitive dye; and
 - (c) a compound having a substance-selective function.

Similarly, the "detector" of Koshiishi comprises:

- (1) a substrate, and
- (2) the following materials (d) to (f) formed on the substrate:
 - (d) an ion complex formed between an ionic amphipathic compound and a water-soluble polymer having ionic groups of a polarity opposite to said amphipathic compound;
 - (e) an ion-selective compound; and
 - (f) a potential-sensitive dye.

It is clear from the above, that "an ophthalmologically acceptable artificial retinal material" of claim 13 is distinct from Koshiishi's "sensor" and "detector."

The Examiner alleges that one having ordinary skill in the art would find claims 13-17 *prima facie* obvious because one would be motivated to employ the specific substrate (*i.e.*, artificial material) which comprises a polymer (*i.e.*, a biocompatible large molecule silicon) of Koshiishi and potential sensitive dye of Koshiishi to obtain the artificial material claimed herein. However, as discussed *supra*, claim 13 has been amended to recite "an ophthalmologically acceptable artificial retinal material" which consists essentially of:

- (1) a biocompatible large molecule as an ophthalmologically acceptable base, and
- (2) an ophthalmologically acceptable organic dye compound which is chemically bound to or incorporated therein.

In contrast thereto, the "sensor" and "detector" in Koshiishi comprises, in addition to the substrate and dye compound, (a) and (c) or (d) and (e), as described above, respectively. It is therefore respectfully submitted that one skilled in the art would not be motivated to use such a "sensor" or "detector" to obtain the herein claimed ophthalmologically acceptable artificial retinal material.

Furthermore, as shown in the declaration of Mr. MATSUO, which was filed November 4, 2005, the material claimed herein represents a breakthrough in the field of retinal prostheses because it has a high potential of giving "a light" to patients who need treatment for hereditary and acquired diseases accompanied by loss of photoreceptor cells, such as retinitis pigmentosa. Koshiishi teaches nothing about a material that is ophthalmologically acceptable, and it is therefore respectfully submitted that there is nothing in Koshiishi that would lead one skilled in the art to use the material of Koshiishi as a retinal material.

Rejections under 35 U.S.C.112

Claims 13-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement and as not being enabling. The Examiner alleges that there is no support for the broad recitation of "a biocompatible high molecule" and "an organic dye compound." Incorporation of the compound of claim 15 and of formulae 14-17 on page 10 would obviate this rejection.

This rejection is respectfully traversed. As suggested by the Examiner, the subject matter of claim 15 has been incorporated into claim 13.

However, applicant respectfully disagrees with the Examiner with respect to "an organic dye compound." As clearly defined in claim 13 as amended, "an ophthalmologically acceptable artificial retinal material" of the claimed invention consists essentially of an ophthalmologically acceptable organic dye compound, which has an absorption maximum in the visible region and which is capable of evoking a receptor potential in response to photostimulation in an optic nerve. In other words, any organic dye compounds can be used in the herein claimed invention as long as they satisfy the limitations recited in claim 13. One skilled in the art can readily determine which dye compounds are

ophthalmologically acceptable and have an absorption maximum in the visible region and can evoke a receptor potential in response in an optic nerve in response to photostimulation. The specification as filed at pages 4 to 6 recites various organic dye compounds which have these characteristics. Chemical formulae 1-17 are specific examples of such organic dye compounds. However, it is apparent that the organic dye compounds should not be limited to those represented by chemical formula 1-17.

As the Examiner is well aware, to satisfy the written description requirement, a specification must describe the invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. In the present case, the inventors have described a material of an artificial retina with the requirements that the materials of which the artificial retina be made ophthalmologically acceptable and that the dyes respond to visible light and can evoke a receptor potential in an optic nerve in response to photostimulation.

To satisfy the enablement requirement, the specification must describe how to make and how to use the invention. In the present case, the specification describes a material for an artificial retina that is ophthalmologically

acceptable, and that incorporates an ophthalmologically acceptable dye which has the characteristics as claimed. One skilled in the art, having this information, can, without undue experimentation, make such an artificial retina. One skilled in the art can readily determine which dyes are active in the visible spectrum and can evoke a response in an optic nerve.

Claim Objections

Claims 1-6 and 13-17 are objected to as containing non-elected subject matter, i.e., an organic dye other than the compounds of formula 14-17.

The present amendment cancels claims 1-6. However, it is respectfully submitted that the organic dyes claimed herein all have the same characteristics, namely, that they are ophthalmologically acceptable, they have an absorption maximum in the visible spectrum, they evoke a receptor potential in an optic nerve in response to photostimulation. It is not understood why applicant should be limited to only the specific dyes disclosed in formulae 14-17, as this group of compounds is far too restrictive. One skilled in the art can readily identify dyes that meet these criteria, and, since the material that is the subject of the present claims has already been examined, it is respectfully submitted that the

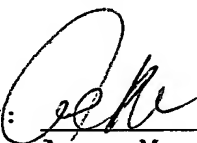
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specific dye compounds are not at issue, because the material
as claimed encompasses all dyes having the recited
characteristics.

In view of the above, it is respectfully submitted
that the claims are now in condition for allowance, and
favorable action thereon is earnestly solicited.

Respectfully submitted,

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